comprises, in wt-%, 2.6 to 2.95 carbon, 1.4 to 1.75 silicon, 0.7 to 1.4 manganese, 1.5 to 2.01 chromium, 4.15 to 4.6 nickel, 0.3 to 0.9 molybdenum, 0.005 to 0.04 aluminum and 1.9 to 2.9 vanadium.

In another aspect, the casting alloy of the working or sleeve part may comprise 3.1 to 3.9 wt-% of vanadium, e.g., 3.3 to 3.75 wt-% of vanadium.

In further aspects of the composite indefinite chill roll, the core part is made of ductile iron and/or the binding zone between the working or sleeve part and the core part has, in the radial direction, a bending strength (3-point bending test) of greater than 600 N/mm^2.

BRIEF DESCRIPTION OF THE DRAWINGS

Page 14, after line 20, insert and center the following:

DETAILED DESCRIPTION OF THE INVENTION

Page 18, line 1, please change "**Claims**" to WHAT IS CLAIMED IS:

Please insert an Abstract of the disclosure as appended at the end of this Amendment and labeled Appendix.

IN THE CLAIMS

Please cancel claims 1-30 without prejudice or disclaimer. Please enter the following claims 31-84 for consideration by the Examiner:

---31. A method for the production and processing of alloyed casting material for a working part of an indefinite chill roll, said method comprising:

(a) providing a melt having a composition comprising, in wt-%:

2.0 to 3.5 carbon

1.0 to 2.0 silicon

0.5 to 2.0 manganese

1.0 to 3.0 chromium

3.5 to 4.9 nickel

0.2 to 2.9 molybdenum

with the remainder being iron, accompanying elements, and impurities related to the manufacturing process;

(b) adding to and dissolving in the melt more than 0.5 and up to 5.9 wt-% of vanadium, provided that the vanadium may in part be replaced, in an amount of less than 0.6 wt-%, by at least one of niobium and tantalum;

(c) casting the melt of (b) into a mold and allowing the melt to solidify into a body;

(d) subjecting the body to a heat treatment comprising heating to a treatment temperature, holding at this temperature, and cooling to room temperature;

wherein the composition of the melt is set using alloying methods by fixing the concentrations of carbon, silicon, nickel and the effective total of the carbide forming elements in such a manner that upon solidification of the melt a

microstructure is formed which comprises 1.0 to 3.0 vol-% of graphite, with more than 20 and less than 100 graphite particles being present per mm^2 of observed surface in a metallographic section, and wherein the remainder is composed primarily of martensite, 8 to 35 vol-% of eutectic carbides, and at least 1 vol-% of finely distributed carbides of at least one of vanadium, niobium and tantalum.

32. The method of claim 31, wherein said mold is a centrifugal casting mold.

33. The method of claim 31, wherein said body is, or is processed into, a working or sleeve part of a composite roll comprising a core part and said working or sleeve part.

34. The method of claim 33, wherein the body, before being subjected to said heat treatment, is processed into said composite roll.

35. The method of claim 32, wherein said microstructure comprises 1.0 to 2.5 vol-% of graphite, more than 22 and less than 100 graphite particles being present per mm^2 of observed surface in a metallographic section, the remainder being composed primarily of martensite, 10 to 25 vol-% of eutectic carbides, and 2 to 20 vol-% of finely distributed carbides of at least one of vanadium, niobium and tantalum.

36. The method of claim 35, wherein a concentration ratio of carbon to silicon in the melt is adjusted to a value of not higher than 2.6.

37. The method of claim 31, wherein a concentration ratio of carbon to silicon in the melt is adjusted to a value of not higher than 2.0.

38. The method of claim 36, wherein a carbon content of the melt is adjusted to a value of 2.2 to 3.1 wt-%.

39. The method of claim 37, wherein a carbon content of the melt is adjusted to a value of 2.6 to 2.95 wt-%.

40. The method of claim 35, wherein a silicon content of the melt is adjusted to a value of 1.2 to 1.85 wt-%.

41. The method of claim 35, wherein a silicon content of the melt is adjusted to a value of 1.4 to 1.75 wt-%.

42. The method of claim 31, wherein 0.002 to 0.65 wt-% of aluminum is added and dissolved in the melt.

43. The method of claim 36, wherein 0.005 to 0.04 wt-% of aluminum is added and dissolved in the melt.

44. The method of claim 32, wherein a nickel content of the melt is adjusted to a value of 3.51 to 4.7 wt-%.

45. The method of claim 37, wherein a nickel content of the melt is adjusted to a value of 4.15 to 4.6 wt-%.

46. The method of claim 44, wherein a concentration ratio of molybdenum to chromium in the melt is adjusted to a value of less than 1.0.

47. The method of claim 41, wherein a concentration ratio of molybdenum to chromium in the melt is adjusted to a value of less than 0.8.

48. The method of claim 46, wherein concentrations of chromium and molybdenum in the melt are adjusted to values of 1.5 to 1.9 wt-% of chromium and 0.3 to 0.9 wt-% of molybdenum.

49. The method of claim 36, wherein 1.8 to 3.9 wt-/ of vanadium is added to the melt and dissolved therein.

50. The method of claim 39, wherein 1.9 to 2.9 wt-% of vanadium is added to the melt and dissolved therein.

51. The method of claim 31, wherein the subjecting of the body to a heat treatment comprises heating from room temperature to a treatment temperature of 400 °C to 500 °C, holding at this temperature for at least two hours, and cooling to room temperature.

52. The method of claim 51, wherein the treatment temperature is 460 °C to 480 °C.

53. The method of claim 52, wherein the body is held at the treatment temperature for at least 8 hours.

54. The method of claim 51, wherein the cooling to room temperature is followed by a low-temperature treatment.

55. The method of claim 31, wherein a concentration ratio of carbon to silicon in the melt is adjusted to a value of not higher than 2.0, a carbon content of the melt is adjusted to a value

of 2.6 to 2.95 wt-%, a final content of silicon of the melt is adjusted to a value of 1.4 to 1.75 wt-%, a nickel content of the melt is adjusted to a value of 3.51 to 4.7 wt-%, the composition of the melt is adjusted such that a concentration ratio of molybdenum to chromium is less than 0.8, concentrations of chromium and molybdenum in the melt are adjusted to values of 1.5 to 1.9 wt-% of chromium and 0.3 to 0.9 wt-% of molybdenum, 1.9 to 2.9 wt-% of vanadium and 0.005 to 0.04 wt-% of aluminum are added to the melt and dissolved therein, the subjecting of the body to a heat treatment comprises heating from room temperature to a treatment temperature of 460 °C to 480°C, holding at this temperature for at least 8 hours, and cooling to room temperature, and wherein said microstructure comprises 1.0 to 2.5 vol-% of graphite, more than 22 and less than 100 graphite particles being present per mm^2 of observed surface in a metallographic section, the remainder being composed primarily of martensite, 10 to 25 vol-% of eutectic carbides, and 2 to 20 vol-% of finely distributed carbides of at least one of vanadium, niobium and tantalum.

56. A casting material for the working area of indefinite chill rolls comprising an alloy of, in wt-%,

2.0 to 3.5	carbon
1.0 to 2.0	silicon
0.5 to 2.0	manganese
1.0 to 3.0	chromium

3.5 to 4.9 nickel

0.20 to 2.9 molybdenum

0 to 0.65 aluminum and

more than 0.5 to 5.9 vanadium, provided that the vanadium may in part be replaced, in an amount of less than 0.6 wt-%, by at least one of niobium and tantalum, the remainder being iron, accompanying elements and impurities related to the manufacturing process, wherein 1.0 to 3.0 vol-% of graphite is present in the form of particles with a distribution of more than 20 and less than 100 particles per mm^2 of polished surface of the alloy.

57. The casting material of claim 56, wherein the alloy comprises 1.8 to 4.9 wt-% of vanadium and 2.2 to 3.1 wt-% of carbon, and wherein 1.2 to 2.5 vol-% of graphite is present in the form of particles with a distribution of more than 22 and less than 90 particles per mm^2 of polished surface.

58. The casting material of claim 57, wherein the alloy comprises, in wt-%, 1.2 to 2.5 chromium, 0.5 to 2.1 molybdenum and 1.5 to 4.9 vanadium.

59. The casting material of claim 56, wherein a concentration ratio of carbon to silicon in the alloy is not higher than 2.6.

60. The casting material of claim 58, wherein a concentration ratio of carbon to silicon in the alloy is not higher than 2.0.

61. The casting material of claim 59, wherein the alloy comprises 2.6 to 2.95 wt-% of carbon.

62. The casting material of claim 61, wherein the alloy comprises 1.2 to 1.85 wt-% of silicon.

63. The casting material of claim 60, wherein the alloy comprises 1.4 to 1.75 wt-% of silicon.

64. The casting material of claim 57, wherein the alloy comprises 0.002 to 0.65 wt-% of aluminum.

65. The casting material of claim 58, wherein the alloy comprises 0.005 to 0.04 wt-% of aluminum.

66. The casting material of claim 59, wherein the alloy comprises 3.5 to 4.7 wt-% of nickel.

67. The casting material of claim 60, wherein the alloy comprises 4.15 to 4.6 wt-% of nickel.

68. The casting material of claim 61, wherein a concentration ratio of molybdenum to chromium in the alloy is less than 1.0.

69. The casting material of claim 62, wherein a concentration ratio of molybdenum to chromium in the alloy is less than 0.8.

70. The casting material of claim 56, wherein the alloy comprises 1.5 to 2.01 wt-% of chromium and 0.3 to 0.9 wt-% of molybdenum.

71. The casting material of claim 70, wherein the alloy comprises 1.8 to 3.9 wt-% of vanadium.

72. The casting material of claim 65, wherein the alloy comprises 1.9 to 2.95 wt-% of vanadium.

73. The casting material of claim 59, wherein the material comprises 8 to 35 vol-% of

eutectic carbides and 1 to 15 vol-/ of carbides of at least one of vanadium, niobium and tantalum.

74. The casting material of claim 73, wherein the material comprises 10 to 25 vol-% of eutectic carbides.

75. The casting material of claim 73, wherein the material comprises 2 to 10 vol-% of carbides of at least one of vanadium, niobium and tantalum.

76. A composite indefinite chill roll comprising a core part and a working or sleeve part surrounding the core part, wherein the core part is made of low-alloy cast iron and the working or sleeve part has a thickness of 10 to 150 mm and is made of a casting alloy with little tendency to adhere or weld to the rolling stock, has a Shore C hardness of 70 to 90 and comprises 1.0 to 2.5 vol-% of graphite, the latter being finely dispersed with a graphite particle count of more than 20 particles per mm^2 of polished surface in a metallographic section, 8 to 35 vol-% of eutectic carbides, and 1 to 20 vol-% of uniformly distributed carbides of at least one of vanadium, niobium and tantalum, with the remainder primarily composed of martensite and constituents related to impurities and the manufacturing process.

77. The composite indefinite chill roll of claim 76, wherein the working or sleeve part

comprises 1.0 to 2.5 vol-% of graphite, the latter with a graphite particle count of at least 22 but less than 100 graphite particles per mm^2 of polished surface, 10 to 25 vol-% of eutectic carbides and 2 to 10 vol-% of carbides of at least one of vanadium, niobium and tantalum.

78. The composite indefinite chill roll of claim 77, wherein the casting alloy of the working or sleeve part comprises, in wt-%,

2.0 to 3.5	carbon
1.0 to 2.0	silicon
0.5 to 2.0	manganese
1.0 to 3.0	chromium
3.5 to 4.9	nickel
0.20 to 2.9	molybdenum
0.002 to 0.65	aluminum and
0.5 to 5.9	vanadium, provided that the vanadium may in part be replaced, in an amount of less than 0.6 wt-%, by at least one of niobium and tantalum, with the remainder being iron and impurities.

79. The composite indefinite chill roll of claim 78, wherein the casting alloy of the working or sleeve part comprises, in wt-%,

2.21 to 3.1 carbon

1.2 to 1.85 silicon

0.6 to 1.6 manganese

3.5 to 4.7 nickel

0.005 to 0.1 aluminum and

1.8 to 3.9 vanadium.

80. The composite indefinite chill roll of claim 79, wherein the casting alloy of the working or sleeve part comprises, in wt-%,

2.6 to 2.95 carbon

1.4 to 1.75 silicon

0.7 to 1.4 manganese

1.5 to 2.01 chromium

4.15 to 4.6 nickel

0.3 to 0.9 molybdenum

0.005 to 0.04 aluminum and

1.9 to 2.9 vanadium.

81. The composite indefinite chill roll of claim 78, wherein the casting alloy of the working or sleeve part comprises 3.1 to 3.9 wt-% of vanadium.